

# *Traditional Chinese Mind-Body Exercises Improve Self-Control Ability of an Adolescent with Asperger's Disorder*

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*The present study has employed traditional Chinese mind-body exercises, namely the Triarchic Bodypathway Relaxation Technique (TBRT) and Natural Dan Tien Breathing (NDTB) of the Dejian Mind-Body Intervention, to improve the self-control ability of a teenage girl, TK, diagnosed with Asperger's disorder. Instant intervention effect was noted with significant reduction in temper tantrums and repetitive behaviors, and faster self-calming process observed in TK after the first week of intervention. The effect was able to sustain throughout the three-month intervention period. Additional positive changes in problem-solving and psychosocial functioning were also observed. The present encouraging findings have provided preliminary efficacious support for the traditional Chinese mind-body exercises on improving brain functions and promoting psychological well-being.*

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According to the DSM-IV-TR, Asperger's disorder is a type of Pervasive Developmental Disorder with distinctive features of impaired social interaction ability and restricted repetitive patterns of behavior and interest (American Psychiatric Association, 2000). Asperger's disorder has been considered as a mild form of disorder along the varying spectrum of autism, given its absence of marked delay of language development and its relatively intact or even above-average intellectual functioning. Nevertheless, individuals with Asperger's disorder were usually reported by their caregivers to have greater emotional and behavioral disturbance than other forms of autism (Tonge, Brereton, Gray, & Einfeld, 1999). In specific, they tended to present more disruptive behaviors and anxiety mood, and poorer social relationships. The emotional and behavioral disturbance of Asperger's disorder was often the reflection or secondary consequence of their difficulty in self-controlling their thoughts, emotions and behaviors. Several empirical studies have reported the disinhibited and impulsive repertoire associated with Asperger's disorder (Eisenmajer, Prior, Leekam, Wing, Gould, Welham, & Ong, 1996; Kleinhans, Akshoomoff, & Delis, 2005; Laurent & Rubin, 2004; Nyden, Gillberg, Hjelmquist, & Heiman, 1999; Sofronoff, Attwood, Hinton, & Levin, 2007). Emotionally, many individuals with Asperger's disorder were clinically observed to have higher tendency of irritability. Particularly upon conflicting or unexpected situation, they tended to respond instantaneously with intense frustration and restless feeling, which can be expressed in terms of challenging behaviors such as yelling, screaming, crying or aggression towards themselves or others. Cognitively, Asperger's individuals having poor impulse control could be reflected by their disinhibition of repetitive ideas of thought and cognitive rigidity. Its behavioral manifestation could be mentally or verbally perseverating on the same idea or inflexibly shifting their mind set in generating alternatives in problem-solving. However, given their 'apparently' competent language ability and general intelligence, yet underdeveloped self-control ability, children with Asperger's disorder were often considered by their parents and teachers as uncooperative, misconduct and emotional. They were also more likely to experience substantial psychological stress in meeting others' expectation, sometimes maybe unrealistic, on their social competence and academic potential in mainstream school setting considering their seemingly 'normal' cognitive abilities. The external pressure plus their deficient self-control ability may further impede their social and educational functioning, and hence their

psychological well-being and quality of life. Such vicious cycle could be more prominent and detrimental for Asperger's adolescents, who became more aware of their deficiency and more concerned about other's comments on them.

TK was a sixteen-year-old girl diagnosed of having autistic tendency with normal intelligence level at the Pamela Youde Nethersole Eastern Hospital since three years old. When she was referred to the Centre for Neurocognitive Functions Enhancement for assessment and intervention, she was diagnosed to have Asperger's disorder by the second author who is a clinical psychologist based on the DSM-IV-TR diagnostic criteria. According to TK's mother, TK has negative history of neurological problems, head injury, psychiatric disorders, or developmental delay in speech. Yet, TK was noted to be lack of eye contact and social or emotional reciprocity at interpersonal interaction as early as age 2. The major presenting problems of TK as reported by her mother were frequent temper outbursts and repetitive speech upon trivial daily hassles, and significantly impaired relationships with peers and family members. TK was currently a Form 4 student. Given that she had failed all subjects, except music and arts, and frequent quarrels with schoolmates, she had to repeat her Form 4 study in another secondary school last year. Since TK was at the teenage and there was relatively limited social resources provided for teenage with special needs in Hong Kong, therefore, her mother was desperate at the time when they came to us.

To tackle TK's major presenting problem of impaired emotional and behavioral control upon stressful events, we have implemented traditionally developed Chinese mind-body exercises to facilitate her self-calming and self-control ability through inducing bodily and mentally relaxing state and enhancing her self-awareness. The Chinese mind-body exercises were built upon the fundamental belief of the relationship between our internal energy or Chi (氣) and general healthiness. The key to achieve mental and physical health is to accumulate adequate Chi storage and smooth passage of Chi through the body. The "Triarchic Bodypathway Relaxation Technique" (TBRT) and components of "Dejian Mind-Body Intervention" (DMBI) were introduced to TK. TBRT is a verbal guide of an ancient Chinese self-regulatory relaxation technique recorded by the first author. Through passively listening to the recording, it is believed to unblock the flow of Chi within the body of practitioner, and thereby ease the process of achieving relaxed yet concentrated state. Also, given its passive and easy-to-master merits, the TBRT was first

introduced to TK prior to the learning of DMBI technique, which requires more active self-monitoring skills as will be discussed in next paragraph. Recent electrophysiological evidence has supported that TBRT helped to give rise to positive emotions, to induce deep relaxation and to enhance internalized control of attention, as reflected by enhanced alpha asymmetry index and frontal midline theta activity (Chan, Han, & Cheung, 2008).

The DMBI is a holistic mind-body intervention approach developed and refined by four generations of successors of authentic Shaolin's Chan (Zen practice), Wu (martial arts) and Yi (medical approach) practice (釋 & 陳, 2008). The third author of the present study is the fourth successor of Shaolin Chan Wu Yi. The DMBI is composed of four major components, namely the Chan practice (修禪), dietary monitoring (飲食), internal-enhancing exercises (內養功), and opening orifices (通竅). In the present study, one of the internal-enhancing exercises, namely the Natural Dan Tien Breathing (自然丹田呼吸法, NDTB), has been taught to TK and recommendation for her dietary intake has been given. Similarly, the practice of NDTB and dietary monitoring are aimed to facilitate a smooth flow of Chi. Constant practice of the NDTB was also believed to enrich the Chi storage at the Dan Tien (丹田), locating at the abdomen region below the navel. An fMRI study has revealed that stimulation of Dan Tien was associated with activation of various brain regions such as the bilateral frontal region and cingulate cortex (Chan, Cheung, Chan, Yeung, & Lam, 2006). It has been widely researched that our frontal lobe and cingulate cortex are two crucial brain regions mediating self-control ability (Aron, Fletcher, Bullmore, Sahakian, & Robbins, 2003; Aron, Robbins, & Poldrack, 2004; Bekker, Kenemans, & Verbaten, 2005; Fallgatter, Ehlis, Seifert, Strik, Scheuerpflug, Zilles, Herrmann, & Warnke, 2004; Liddle, Kiehl, & Smith, 2001; Luu, Tucker, & Makeig, 2004). NDTB is one of the ways to stimulate Dan Tien, and thus may possibly be beneficial to enhancing a person's impulse control ability.

The present study aimed to investigate the effect of traditional Chinese mind-body exercises on improving the self-control ability of an adolescent with Asperger's disorder. It is anticipated that TK may demonstrate reduced frequency of temper tantrums and repetitive behaviors upon stressful event. With better self-control and more relaxed mental state achieved, TK may also be more flexible in problem-solving and may hence improve her psychosocial functioning. The result of present clinical case may help to shed some light on the feasibility of

applying authentic Chinese mind-body exercises for facilitating the neuropsychological health of Chinese clinical population.

## Methods

### Baseline Level of Functioning of TK

*Cognitive and Social Functioning.* Based on the clinical interview and observation and results of neuropsychological assessment, TK demonstrated generally intact level of functioning (ranging from low average to superior level) in various cognitive abilities, including visual and verbal attention and memory abilities, executive functions such as abstract reasoning, planning and organization ability and cognitive flexibility. Her impulse control ability as assessed by the Conners' Continuous Performance Test II (Conners, 2000) was within the mildly impaired to borderline range.

Socially, TK showed no interest in joining any social activity or in establishing friendship with peers since childhood. Her mother reported that TK never expressed concern on others, and she was most of the time self-centered concerning mainly her own needs and interests (e.g., designing and making handcraft, playing with computer and watching television). Her interpersonal relationship was further worsened by her irritability as she often got into conflicts with her family members and schoolmates almost everyday.

*Control of Emotional Outbursts.* According to her mother's report, TK was commented to have poor control of her emotion. She was easily irritated upon any difficulties or unexpected events happening in everyday life. For instance, when her computer or television could not be switched on successfully, she could yell and throw temper continuously until the problem got resolved by others. Given that trivial daily hassles could make TK frustrated, her temper outbursts was as frequent as at least once per day. In addition to the outbursts frequency, her temper tantrums usually sustained for more than 5 to 10 minutes, even at the longest duration of an hour. Her irritability was also observed at school. TK reported that she always scolded back or cried in response to her schoolmates' teasing. Her mother said that TK's temper could be so intense that the school teachers would request her mother to come to school to comfort her.

*Control of Repetitive Thoughts and Behaviors.* TK's difficulty in

inhibiting her impulse was not only restricted to emotional aspect, but also manifested in cognitive and behavioral domains. She had tendency of mentally and verbally ruminating negative life events or obstacles. For instance, when she could not reach her mother on phone, she would non-stop making phone call until her mother answered. Whenever she had experienced obstacles (e.g., computer was out of order) or frustrating events (e.g., schoolmates teased her), she would repeat the same event to her mother in that day for at least three times. When she had lost something (e.g., her own mirror), she would keep on finding the lost object and unlikely think of alternative solution (e.g., use another mirror as substitution). Her mother commented that her rigidity and inflexible problem-solving ability further exacerbated her frustration and temper.

### **Traditional Chinese Mind-Body Exercises**

The intervention designed for TK was composed of two major parts, namely the TBRT and DMBI. She was followed up once bi-weekly. And her mother helped to keep record of her emotional and behavioral problems and remind her of practicing the mind-body intervention technique. Throughout the intervention, TK received no medication treatment but psychological follow-up at the general hospital every 3 months.

*Triarchic Bodypathway Relaxation Technique (TBRT).* The TBRT is an ancient Chinese self-regulatory relaxation technique, which has become increasingly popular in local Chinese population and has recently been found to have positive effect on enhancing an individual's control of internalized attention and positive emotions (Chan, Han, & Cheung, 2008). The TBRT is 15-minute verbal recording of instructions which gradually guides the practitioner to relax from the top (head) to the bottom (foot) of the body through three pathways that run along the front, back and two sides of the body. Given that an individual who practices the TBRT is only required to passively listening to the concrete instructions, it would be suitable for individuals having limited comprehension ability or having difficulty in mastering technique that requires more conscious control. TK was introduced this technique because she could hardly master the Dan Tien Breathing technique at the beginning of intervention, which requires relatively more active role and conscious control during practice. TK has been practicing the TBRT for 3 months once every night before sleep.

*Dejian Mind-Body Intervention (DMBI).* First, TK was taught one of the techniques of mind-body exercise, called Natural Dan Tien Breathing (自然丹田呼吸法, NDTB). It was developed upon the basic principle of Chan medical approach of unblocking the Chi flowing through the body and to strengthen the storage of Chi, i.e., Dan Tien, with the goal of enhancing physical and mental health. The NDTB can be practiced at standing or sitting posture. Individuals are required to put their hand(s) gently on the Dan Tien (i.e., about half inch below the navel), while breathing in and out naturally. They also need to passively and relaxingly observe the Dan Tien region during inhalation and observe the nose during exhalation. Same as the TBRT, TK has practiced the NDTB for 3 months, once per day.

For the dietary monitoring component, since TK could hardly refrain from eating meat and seafood instantly, therefore she was recommended to gradually reducing intake of meat and seafood. Given that TK has very restricted interest in vegetables (only prefers broccoli) and fruits (only accepts apple), she was then encouraged to try more variety of vegetables and fruits. Her mother reported that TK now began to eat less red meat and have two apples per day. Yet, her intake proportion of meat/seafood and vegetables did not change as compared to pre-treatment time. Therefore, the treatment effect found in present study would possibly less accountable to the effect of dietary change.

## **Treatment Effect**

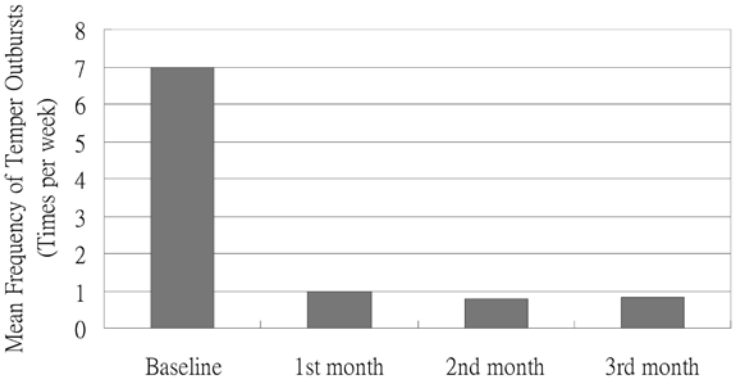
*Control of Emotional Outbursts.* During the first week of practice of the mind-body intervention techniques, TK's mother reported that TK demonstrated no temper outburst throughout the entire week, which has never happened in the past. Even upon frustrating events such as slow processing speed of the computer, TK was able to wait quietly with patience. As compared to the frequency of temper outburst for at least once per day in past years, it seemed to suggest that the effect of the mind-body intervention on improving TK's temper control ability was instant and substantial. During the three-month monitoring of TK's emotional control, TK was observed to be able to keep her temper under control (Figure 1). Apart from the reduced frequency, TK was also noted to be faster in stabilizing her emotion in case of outbursts. As compared to her baseline that took at least 5 to 10 minutes or up to an hour to calm down, she now can make it within a minute or at most 3 minutes, which

began to occur after the first month of intervention and persisted till the end of treatment (Figure 2). Her mother commented that TK became more willing to listen to other's feedback and accept other's suggestion for her. Such improvement was also observed at school, where she now chose to ignore or walk away from the schoolmates who teased her without hot-tempered reactions.

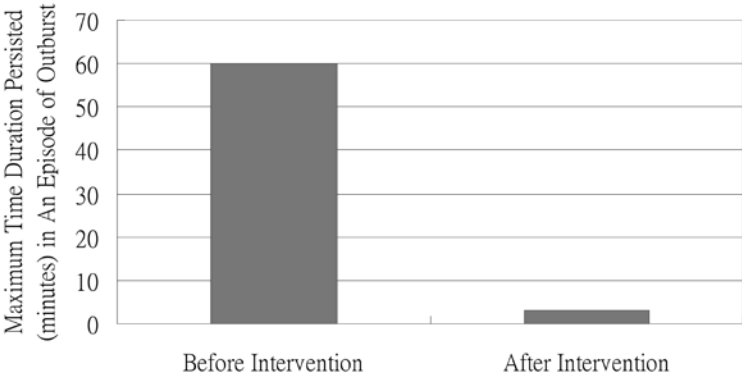
*Control of Repetitive Thoughts and Behaviors.* Throughout the 3-month intervention period, TK demonstrated improved ability in controlling her repetitive thoughts and behaviors. In response to sudden unhappy event happened, TK would now call her mother to talk about the event only once, instead of repetitively ruminating at least 2-3 times within the day of event happened as before intervention (Figure 3). Similarly, such positive behavioral change was observed since the first month of intervention and was able to be sustained after three months. Even if her mother could not be reached on phone, she was now able to leave her a message on the voice mail rather than nonstop re-dialing. Her better self-control was also reflected by her becoming more flexible problem-solving ability. Her mother reported an incidence where TK had lost a pink bead, she found another bead and colored it in pink to substitute the lost one; whereas in the past, TK would keep on searching for the lost one and threw temper immediately.

*Additional Improvements in Psychosocial & Occupational Functioning.* Apart from the improved self-control ability, TK was also noted to have positive changes in psychosocial and occupational functioning. After a month of intervention, TK began to show interest in reading books together with her mother and was willing to join the social gathering with mother's friends. She also said that she now had interest to make friends with same-age peers and thus she was going to join an artwork group during summer vacation. TK also expressed to her mother about her concern and worry to the declining physical health of her grandfather. TK was more willing and capable in verbally expressing her feelings and ideas (e.g., her preference of future study). She has initiated to enroll for the full-time study programme of jewellery design provided by the vocational training centre, and will start the programme in coming September. Her mother commented that these behaviors have never happened in the past. TK reviewed on her overall improvement in various functional domains and commented that she now felt happier than before. And her mother reported to become happier and less tense herself.

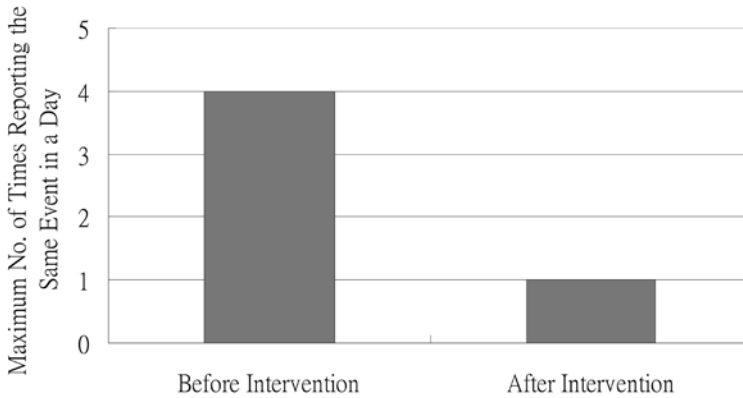
**Figure 1.** Mean frequency of temper outbursts demonstrated by TK before (at baseline) and during three months of intervention.



**Figure 2.** Maximum duration (minutes) persisted by TK during an episode of temper tantrum before and after intervention.



**Figure 3.** Maximum number of times that TK reported to her mother about the same negative life event happened in a day before and after intervention.



## Discussion

According to the report of TK and her mother, TK demonstrated significantly improved ability in controlling her emotions and behaviors since she has practised the traditional Chinese mind-body exercises. The effect of intervention was surprisingly instant that TK showed no temper tantrum in the first week of intervention as compared to the frequency of at least once per day at her baseline prior to intervention. Over the 3-month intervention period, TK was able to maintain on average about once per week occurrence of temper outbursts (i.e., more than 85% of improvement). As reported by TK's mother, TK reacted differently to the same life circumstance since receiving the intervention. For example, TK would definitely throw temper and appear restless if the processing speed of the computer was too slow; whereas she now can wait patiently without frustration in response to the same circumstance. It seems that TK's frustration threshold has been lifted up after the intervention, meaning that she became less easily be frustrated or irritated by trivial life events. TK expressed that she just "felt not irritable or frustrated upon daily hassles, but had no idea of how she could be that". In addition to the higher frustration threshold, TK became more competent in calming herself once she got tempered. She took much less time to stabilize her

emotional retaliation than before. Such improved self-control ability was also observed in controlling her repetitive calling to her mother and verbal rumination on the same unhappy event. Her repetitive pattern of behavior has been eliminated after intervention. It is interestingly noted that the improved impulse control was accompanied by more flexible problem-solving skills and positive mood experienced, and better social and occupational functioning. The present findings may have provided preliminary evidence on the extensive positive impact of traditional Chinese mind-body exercises on enhancing a person's brain function, psychological wellness and overall quality of life. Yet, further studies with larger sample size were needed before drawing conclusion on the efficacy of this intervention.

Considering the intensity and duration of intervention sessions (overall less than 6 hours in three months), the extent of improvement of TK was rather robust. Even when compared with the robust effect of well-established Cognitive Behavior Therapy for anger management (Sofronoff, Attwood, Hinton, & Levin, 2007), where 57% of reduction in anger outbursts was achieved after 12 hours of intervention sessions, the present preliminary findings were very encouraging. It may help to shed some light on the applicability of traditional Chinese mind-body exercises in improving the self-control ability of individuals with Asperger's disorder, or even other neurodevelopmental disorders (e.g., attention-deficit/hyperactivity disorder) or brain-damaged patients who have suffered from impulse control problem. Moreover, given that the proposed Chinese mind-body exercises has the advantage of easily and more economically learnt and practiced, and requiring less involvement of expertise and caregivers, this intervention method may serve as an alternative or a complementary treatment for certain clinical populations, who may have difficulty in following regime of some conventional intervention. The training on this intervention technique can also be carried out in group format so as to be cost-effective.

The positive effect of the two traditional Chinese mind-body exercises on improving self-control ability may be attributable to their effect in altering the brain physiological state. Our previous pilot study on the TBRT (Chan, Han, & Cheung, 2008) revealed that this technique increased the EEG alpha asymmetry at the anterior (frontal) region of the brain, which is an index associated with positive mood proposed by Davidson and colleagues (Davidson, Ekman, Saron, Senulis, & Friesen, 1990; Davidson & Tomarken, 1989). Practicing TBRT could also elevate

the EEG power at theta frequency band which is an indicator of relaxing state. The source of enhanced theta power was found to be localized at the anterior cingulate cortex, which has been evidenced to serve a crucial function of impulse control by numerous neuroimaging and electrophysiological studies (Aron, et al., 2003; Aron, Robbins, & Poldrack, 2004; Bekker, Kenemans, & Verbaten, 2005; Fallgatter, et al., 2004; Liddle, Kiehl, & Smith, 2001; Luu, Tucker, & Makeig, 2004). For the effect of NDTB, some preliminary data measured by functional Magnetic Resonance Imaging and EEG techniques obtained in our laboratory have suggested that the practice of Dan Tien Breathing was associated with increased activation of the anterior cingulate cortex and enhanced EEG cordance (an indirect measurement of cerebral perfusion; Leuchter, Cook, Lufkin, Dunkin, Newton, Cummings, Mackey, & Walter, 1994; Leuchter, Uijtdehaage, Cook, O'Hara, & Mandelkern, 1999) at the prefrontal regions. Similar to the effect of TBRT, the frontal alpha asymmetry, which was proposed as an index of positive mood (Davidson, et al., 1990; Davidson & Tomarken, 1989), was also elevated during Dan Tien Breathing (釋 & 陳, 2008). The above empirical evidence may assist the explanation for the positive changes happened to TK, including higher frustration threshold, better control of anger outbursts and perseverative behaviors, and feeling happier after intervention.

Although the results of present single-case study are encouraging, more clinical and controlled trial studies with greater number of participants are necessary to further validate the effect of Chinese mind-body exercises on patients having self-control problem. Given that it is a single-case study, it is unknown if similarly promising treatment effect could be replicable in other autistic / Asperger's individuals or it just happened by chance on this specific case. Especially that individuals with autistic features were well-understood to have large variations in their degree of clinical features, cognitive and/or behavioral impairments, therefore in addition to expanding sample size, it is also meaningful to examine how these confounding factors will be associated with the intervention effectiveness. Besides, regarding the holistic approach of the Dejian mind-body intervention, which was developed to have four components, it is worth-while to explore the efficacy of the entire intervention approach with all components implemented. Such research findings would be valuable for future practice of traditional Chinese mind-body intervention at local clinical setting.

## References

- American Psychiatric Association (2000): *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV-TR*. Washington, DC: American Psychiatric Association.
- Aron, A. R., Fletcher, P. C., Bullmore, E. T., Sahakian, B. J., & Robbins, T. W. (2003). Stop-signal inhibition disrupted by damage to right inferior frontal gyrus in humans. *Nature Neuroscience*, 6, 115–116.
- Aron, A. R., Robbins, T. W., & Poldrack, R. A. (2004). Inhibition and the right inferior frontal cortex. *Trends in Cognitive Sciences*, 8, 170–177.
- Bekker, E. M., Kenemans, L. K., & Verbaten, M. N. (2005). Source analysis of the N2 in a cued Go/NoGo task. *Cognitive Brain Research*, 22, 221–231.
- Chan, A. S., Cheung, M. C., Chan, Y. L., Yeung, D. K. W., & Lam, W. (2006). Bilateral frontal activation associated with cutaneous stimulation of Elixir Field: An fMRI Study. *The American Journal of Chinese Medicine*, 34, 207–216.
- Chan, A. S., Han, Y. M., Y., & Cheung, M. C. (2008). Electroencephalographic (EEG) measurements of mindfulness-based triarchic body-pathway relaxation technique: A pilot study. *Applied Psychophysiological Biofeedback*, 33, 39–47.
- Conners, C. (2000). *Conners' Continuous Performance Test (CPT II): Technical guide and software manual*. Toronto: MHS.
- Davidson, R. J., Ekman, P., Saron, C., Senulis, J., & Friesen, W. V. (1990). Approach/withdrawal and cerebral asymmetry: Emotional expression and brain physiology, I. *Journal of Personality and Social Psychology*, 58, 330–341.
- Davidson, R. J., & Tomarken, A. J. (1989). Laterality and emotion: An electrophysiological approach. In F. Boller & J. Grafman (Eds.), *Handbook of Neuropsychology* (Vol. 3, pp. 419–441). Amsterdam: Elsevier.
- Eisenmajer, R., Prior, M., Leekam, S., Wing, L., Gould, J., Welham, M., & Ong, B. (1996). Comparison of clinical symptoms in autism and Asperger's disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 35, 1523–1531.
- Fallgatter, A. J., Ehlis, A. C., Seifert, J., Strik, W. K., Scheuerpflug, P., Zillessen, K. E., Herrmann, M. J., & Warnke, A. (2004). Altered response control and anterior cingulate function in attention-deficit/hyperactivity disorder boys. *Clinical Neurophysiology*, 115, 973–981.
- Kleinmans, N., Akshoomoff, N., & Delis, D. C. (2005). Executive functions in autism and Asperger's disorder: Flexibility, fluency, and inhibition. *Developmental Neuropsychology*, 27, 379–401.
- Laurent, A. C., & Rubin, E. (2004). Challenges in emotional regulation in Asperger syndrome and high-functioning autism. *Topics in Language Disorders*, 24, 286–297.

- Leuchter, A. F., Cook, I. A., Lufkin, R. B., Dunkin, J., Newton, T. F., Cummings, J. L., Mackey, J. K., & Walter, D. O. (1994). Cordance: A new method for assessment of cerebral perfusion and metabolism using quantitative electroencephalography. *Neuroimage, 1*, 208–219.
- Leuchter, A. F., Uijtdehaage, S. H. J., Cook, I. A., O'Hara, R., & Mandelkern, M. (1999). Relationship between brain electrical activity and cortical perfusion in normal subjects. *Psychiatry Research: Neuroimaging Section, 90*, 125–140.
- Liddle, P. F., Kiehl, K. A., & Smith, A. M. (2001). Event-related fMRI study of response inhibition. *Human Brain Mapping, 12*, 100–109.
- Luu, P., Tucker, D. M., & Makeig, S. (2004). Frontal midline theta and the error-related negativity: Neurophysiological mechanisms of action regulation. *Clinical Neurophysiology, 115*, 1821–1835.
- Nyden, A., Gillberg, C., Hjelmqvist, E., & Heiman, M. (1999). Executive function/attention deficits in boys with Asperger Syndrome, attention disorder and reading/writing disorder. *Autism, 3*, 213–228.
- Sofronoff, K., Attwood, T., Hinton, S., & Levin, I. (2007). A randomized controlled trial of a cognitive behavioral intervention for anger management in children diagnosed with Asperger syndrome. *Journal of Autism Developmental Disorder, 37*, 1203–1214.
- Tonge, B. J., Brereton, A. V., Gray, K. M., & Einfeld, S. L. (1999). Behavioural and emotional disturbance in high-functioning autism and Asperger syndrome. *Autism, 3*, 117–130.
- 釋德建、陳瑞燕 (2008)。《德建身心療法：少林禪武醫臨床應用》(第三版)。香港：禪武醫文化出版社。

## 傳統中國身心運動改善亞氏保加症患者的自我控制能力

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### 摘要

本研究採用兩項傳統中國身心運動——三路端坐鬆弛法及德建身心療法中的自然丹田呼吸法，來改善一名患有亞氏保加症的女孩的自我控制能力。結果顯示中國身心運動的療效迅速而顯著，女孩於接受首星期治療時，已

明顯減少了鬧情緒及重覆行為的頻率，及加快了平定情緒的速度。此療效更能於三個月療程中得以持續。此外，女孩的解難能力及心理社交能力亦改善了。本研究的鼓舞性結果為傳統中國身心運動於改善大腦功能及提升心理健康的療效提供了初步的驗證。